

*REMARKS/ARGUMENTS*

In response to the Office Action mailed December 8, 2005, Applicants amend their application and request reconsideration. No claims are cancelled and claims 8 and 9 are added so that claims 1-9 are now pending.

Claims 3 and 5 were indicated to be allowable. Therefore, there is no further commentary on those claims.

The Office Action cited and applied three non-patent publications in rejecting claims, articles by Spruytte et al., Vaudo et al., and Blant et al. Applicants' representative expresses appreciation for the supplying of these documents informally via facsimile, upon request, by the Examiner. However, these documents have not been listed on any PTO-892 Form and it is requested that they be listed on such a form in the next communication so they are properly of record in the prosecution.

In this Amendment, claim 1 is amended to describe more specifically the production of atomic nitrogen. Amended claim 1 describes producing atomic nitrogen by passing a nitrogen-containing gas across a heated catalytic member. This description is supported in the patent application, for example, at page 4, lines 12-14, and page 5, lines 5-13. The same passages are the basis of newly added claims 8 and 9, which respectively depend from independent claims 4 and 6.

Claims 1, 2, and 4 were rejected as anticipated by or obvious over the prior art described in the patent application as further explained through an article by Spruytte et al. This rejection is respectfully traversed.

In order to establish obviousness of claims 1 and 2, the prior art applied would have to at least disclose all of the elements of claim 1. However, none of the prior art described in the patent application, including the publication mentioned in the patent application, or the article by Spruytte describes the formation of atomic nitrogen in a catalytic reaction as described in amended claim 1. Thus, the sources of prior art relied upon cannot establish *prima facie* obviousness as to that claim nor as to its dependent claim 2. Of course, if *prima facie* obviousness cannot be established, then clearly neither of those publications can anticipate claim 1 or its dependent claim 2. For the same reasons, newly submitted claims 8 and 9 are patentable over the prior art applied in the Office Action mailed December 8, 2005.

According to the Office Action at page 5, the steps described in claim 4 are disclosed in the patent application as prior art. This assertion is incorrect. The patent application does include at pages 1 and 2 a very general description of the formation of a field effect transistor employing a gallium nitride substrate that is nitrided. Nitriding is achieved in a plasma but there is no description of formation of source, gate, and drain electrodes.

Reference is made in the prior art description to a Japanese patent publication to Sato, JP 6-244409. A copy of that publication was supplied in an Information Disclosure Statement filed simultaneously with the patent application. Sato shows a gallium arsenide substrate on which two gallium arsenide layers of different conductivities are deposited. A recess extending entirely through the upper layer is formed and the surface that is exposed, which includes part of each of the two layers, is subjected to nitriding. Thereafter, after removing part of the nitrided surface layer source, gate, and drain electrodes are formed. Presumably, this disclosure from Sato is incorporated in the prior art description of the present patent application.

The Sato description also fails to anticipate claim 4. In claim 4, the source, drain, and gate electrodes are formed on the substrate followed by the nitriding. Thus, it is apparent, for example, that no nitriding would be present between the gate electrode and the underlying substrate. Nitrided material is present between the gate electrode and substrate in Sato. Because of this difference, Sato and the prior art described in the present patent application cannot anticipate claim 4. This conclusion is reached independent of consultation with the non-patent literature publications cited by the Examiner. Spruytte was cited only with regard to the generation of atomic nitrogen in a plasma, an effect that has no relationship to the distinction between the process of claim 4 and Sato. Since none of the sources of prior art discloses this feature of claim 4, no combination of these references can make that claim obvious. Upon reconsideration, the rejections of claim 4 as anticipated and as obvious should be withdrawn.

Claims 6 and 7 were rejected as unpatentable over the prior art described in the patent application in view of Nguyen et al. (U.S. Patent 5,766,695, hereinafter Nguyen). This rejection is respectfully traversed.

Nguyen was relied upon as allegedly disclosing the deposition of an insulating layer and nitriding a surface through that layer by ion implantation. Even assuming that that

description is correct, no combination of the prior art described in the patent application and Nguyen can suggest claim 6.

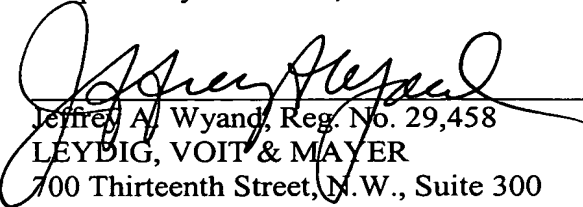
Claim 6, like claim 4, describes first forming the gate, source, and drain electrodes on the surface of the semiconductor material before nitriding by supplying atomic nitrogen through a subsequently deposited insulating or aluminum film. Nguyen contributes no information concerning the sequence of depositing the electrodes and nitriding the underlying surface. As previously described, the prior art of the patent application only describes forming the electrodes after nitriding and after removing some of the nitrided surface with respect to the source and drain electrodes. Thus, no combination of that prior art and Nguyen can include all of the elements of claim 6 and thereby establish *prima facie* obviousness of that claim. Accordingly, upon reconsideration, the rejection of claims 6 and 7 should be withdrawn.

Finally, as previously pointed out, Nguyen describes an ion implantation process, a process in which electrically charged ions are inserted in a material, unlike the process of claims 6 and 7 in which atomic nitrogen that is electrical neutral is supplied to a very thin layer of aluminum or an insulator for diffusion to reach an underlying surface that is thereby nitrided. Nguyen is simply not particularly pertinent to the claimed invention and cannot, in any event, in combination with the prior art described in the patent application establish *prima facie* obviousness of either of claims 6 or 7.

None of claims 4, 6, and 7 has been amended in response to the Office Action. Any new rejection of those claims, based on new applied publications or a different legal ground, cannot properly be a final rejection.

Reconsideration and allowance of all pending claims are earnestly solicited.

Respectfully submitted,

  
Jeffrey A. Wyand, Reg. No. 29,458  
LEYDIG, VOIT & MAYER  
700 Thirteenth Street, N.W., Suite 300  
Washington, DC 20005-3960  
(202) 737-6770 (telephone)  
(202) 737-6776 (facsimile)

Date: February 23, 2006  
JAW:has